97-84238-1

Stetson, George R.

The eyes and ears of whites and blacks

[S.l.]

[1897?]

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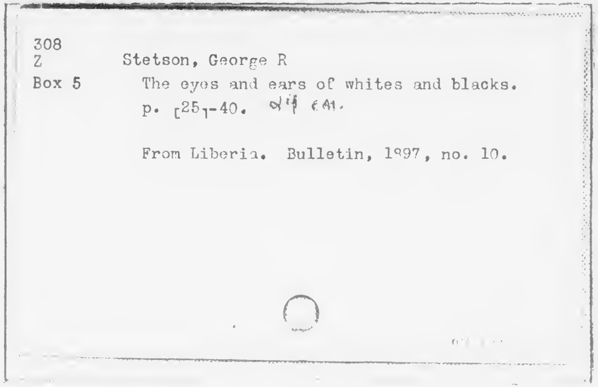

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p. [25]-40. 24 cm.

From Liberia. Bulletin, 1897, no. 10.

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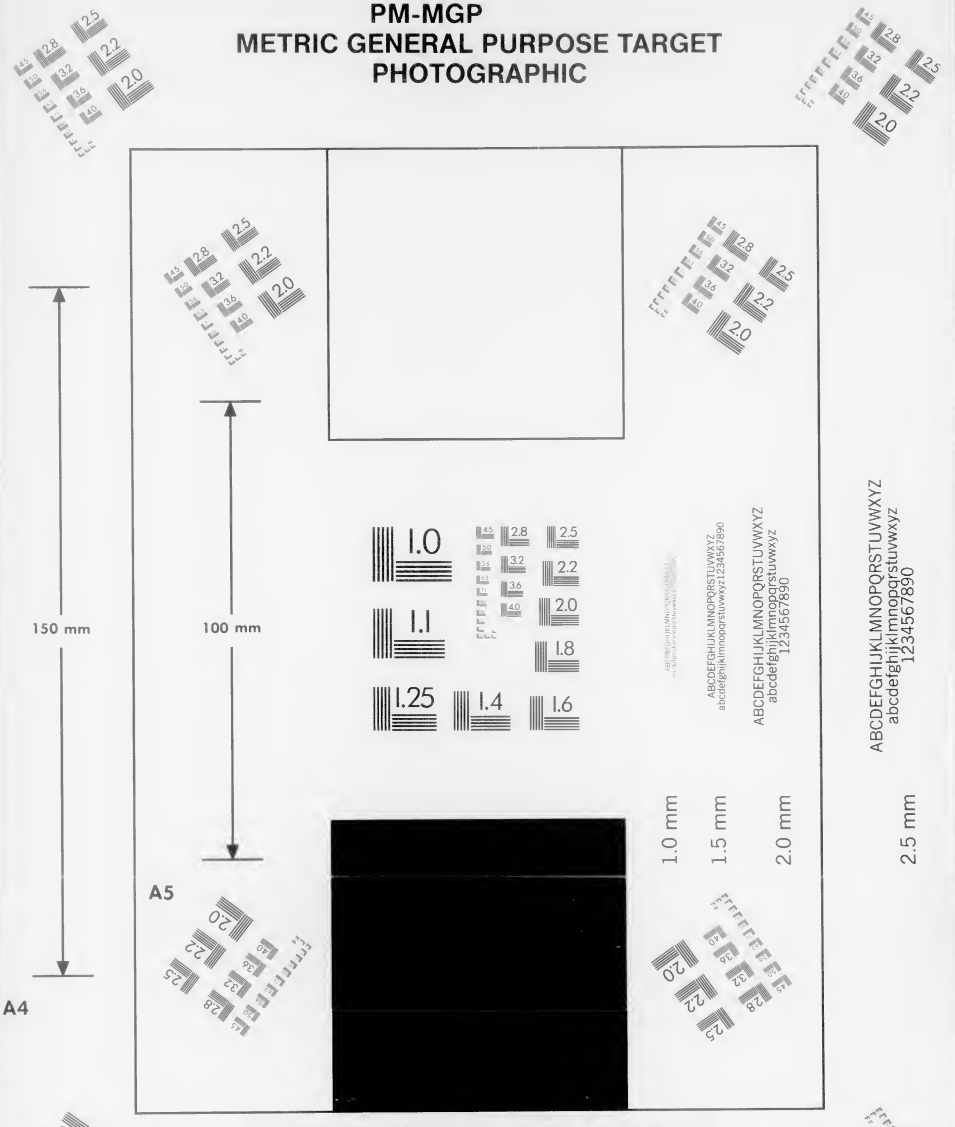

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THE EYES AND EARS OF WHITES AND BLACKS.

In a century distinguished above all others by humanitarian deeds, tendencies, and progress, by the substitution of thought for unreasoning impulse and of facts for sublimated theories, by growth in the practice, understanding, and the application of the principles of Christian socialism to the solution of civic problems, and by its interest in the education and uplifting of the masses, it is surprising that a subject of such vital importance to the intellectual development, the physical comfort, and the economic progress and prosperity of the individual and of the community as the maintenance of the integrity of the eye and ear should be so little understood and so generally neglected.

"It is scarcely possible," remarks the London *Lancet* (November 23, 1895), "to overrate the scientific and social results that might be achieved by systematic observations of the eye and ear."

An opinion which is especially confirmed by the result of the national neglect of these organs which is now apparent in their degeneration, is the increasing blindness and deafness and the prevailing ignorance and indifference concerning their condition and the power of vision and of hearing the normal eye and ear should possess.

"There is not one parent in 500," asserts Dr. R. B. Carter, F. R. C. S., of London, "who has the smallest notion how large a capital letter a child ought to see clearly at 100 feet distant, or to whom the phrase 'Natural acuteness of vision' would convey any definite idea whatever" (a remark which is equally applicable as to the natural capacity of the ear).

The normal eye is capable of distinguishing a capital letter $\frac{3}{8}$ of an inch in height at a distance of 6 meters, and one $3\frac{1}{2}$ inches in height at 60 meters, or (195 feet).

We have not only to contend with the ignorance of parents, an ignorance by no means confined to the lower classes, but with their indifference, neglect, and gross carelessness in apparent and positive affections of the eye and ear.

"Perhaps no subject," says Dr. Edward Reynolds, of Boston, one of the earliest eye specialists in this country, "so intimately connected with the vital interests of learning, has been so much neglected."

Systematic and accurate examinations of the eye and ear will be found invaluable in discovering defects that cannot be remedied in later life; in correcting erroneous and disastrous opinions as to the intellectual capacity of children; in remedying sympathetic complaints resulting from visual or aural defects; in detecting eye strain or excessive abnormal innervation of the eye muscles, which, Dr. Chalmer Prentice asserts, "depletes the nerve centers and gives rise to brain irritation, altering the disposition and forcibly changing the character of the person affected" ("The eye in its relation to health," Dr. C. Prentice); in the discovery of imperfect hygienic environments, the prevention of contagion, and in the determination of the future occupations of those seriously affected.

The world laments the loss of sight or of hearing, but bestows less thought upon their cultivation, improvement, and preservation than upon the dress, the teeth, the complexion, or upon the temporary indisposition of a valuable horse or dog.

"Experience has taught me," declares Dr. Bezold, of Munich, "that a large number of ear diseases found in adults may be traced back to affections recovered from in childhood, and I felt impelled in every one of my reports to reiterate the importance of therapeutical measures, especially at that age" (Arch. Otol., N. Y., vol. xiv, pp. 158, 209).

Otologists are in accord in declaring that the enfeeblement of the sense of hearing is in youth; that all noise is not only an *empêchement* to the ear, but destructive in its ceaseless assaults upon that sensitive organ.

"That the fact that those who live and are taught amid confusing and discordant noises become gradually accustomed to them is no evidence that they are any the less destructive to the ear and exhausting to the brain and nervous system" (J. H. Gardner, M. D., *N. A. Review*, September, 1896), and that in middle life at least one among every three men can no longer hear well and normally in one ear.

Bürkner found that children under their fifteenth year made 22.2 per cent. of all his ear patients. In Dr. Bezold's (Munich) practice, of 3,846 patients 20.5 per cent. were under 15 years of age. Dr. C. T. Blake, of Boston, who is among the foremost otologists in the country, states that of 8,715 cases of ear disease occurring in his practice, 25 per cent. were under 14 years of age, and all were pupils in the public schools. Dr. Weil is of the opinion that even in the school years disturbances of hearing increase with age, while Bezold did not find any material increase in that period.

Inv March 1916

A recent examination of 5,000 children by direction of Superintendent A. S. Whitney, of Saginaw, Michigan, resulted in the discovery that between 50 and 60 per cent. were found with subnormal vision and 20 to 25 per cent. with defective hearing. Visual defects vary in degree with the class, the age, the environment, and the character of the school-room. It is said that of 14,000 white children examined in England and America an average of 35.12 per cent. had subnormal vision, varying in different localities from 25 to 55 per cent.

All authorities who have given attention to this subject agree in the opinion that the proper field in which we are to combat and root out this ignorance of the treatment of organs whose preservation is of preponderant importance to the health, comfort, enjoyment, mental development, culture, and success in life of the individual, as well as of great economic value to the community in reducing the number of expensive institutions and in the prevention of pauperism, is the public school. Mr. Whitney, of Michigan, pertinently says: "When we consider that from a fifth to a fourth of all the pupils in our public schools are suffering from defective hearing or eyesight, and again consider the acknowledged stultifying effect of this misfortune upon their intellectual, business, and social life and their capacity for enjoyment, and further reflect, that with proper care and attention this number can be reduced to 2 per cent. of the attendance, it requires no very strong argument to show that vastly more practical good would be accomplished, to the credit of our humanity, by careful systematized examination and treatment of these defectives than by so much religious devotion to the abstract and the theoretical." (Superintendent A. S. Whitney in *Education*, Boston, April, 1896.)

The first scientific examination of the eyes of school children is said to have been made in 1861 by Professor Jaeger, of Vienna, who was soon followed by Dr. Cohn, of Breslau, in 1867, and Dr. Szokalski, of Paris. Desultory and independent examinations by individuals and school boards acting upon their own suggestion continued to be made, bringing to light and demonstrating to the thinking public the necessity for regular, competent, and systematic examinations. Sweden, as usual, ready for every educational or scientific experiment promising to the public, ordered systematic observations of her school children in 1878, followed by Paris and other large French cities in 1879, and by Germany in 1884. Lausanne, in Switzerland, directed such an examination to be made in 1885, and in Zurich all the primary schools are visited by an oculist in the spring of each year.

In the year 1888 Dr. De Metz in Antwerp, Belgium, examined 7,000 children for the state of refraction and chromatic sense. In the same year a committee of the British Medical Association began a similar inquiry, and subsequently made a report upon 50,000 children, 35,000 of them belonging to London. A committee of that association also found on inquiry that eyesight was tested in but eight of the 483 boys' schools in England, Scotland, and Ireland, and in but six of the 129 girls' schools in England.

In 1891 the governors of King Edward VI schools in Birmingham, comprising 2,200 children of both sexes from 8 to 19 years of age, established a periodical examination of the eye and ear. Observations have also been made in Italy, Russia, Hungary, Roumania, and Buenos Aires. In the United States in a brief of a State law (modeled essentially upon the law creating the Massachusetts Board of Health) establishing the office of medical inspector of schools, read before the American Social Science Association in 1875, the subject of the examination of the eyes and ears was not even suggested, nor has the subject in 1896 yet been taken up by the National Council of Education.

In the year 1875 an independent examination of a small number was made in New York, which has since been followed by limited observations made in Hyde Park, Massachusetts; Worcester, Boston, Philadelphia, Washington, D. C.; California; Charleston, South Carolina; Birmingham, Alabama; Cincinnati, Ohio; Memphis, Tennessee; Baltimore, Maryland; Michigan, and probably in a few other places. In Boston, strange to relate, where we are accustomed to look for leadership in all matters humanitarian or educational, I am informed by Dr. Edward M. Hartwell, the director of physical training in the public schools, "that, although a corps of fifty physicians is daily employed in limiting infectious diseases, no comprehensive and coherent examination of the eyes and ears has ever been made. It is still uncertain," concludes Dr. Hartwell, "whether we shall be able to have these investigations undertaken." I will add that Boston is at the moment interested in putting bath-rooms into her school-houses.

This very imperfect summary of the observations undertaken will, without making pretensions to accuracy, serve to show the genesis and the growth of the public appreciation of their great importance, and will also, I regret to say, show that that appreciation is not yet sufficiently general or vigorous to have moved a single one of our State boards of health or education to order systematic examinations.

An examination of the eyes and ears of 1,000 Washington school children, white and black, one-half of each race, and of all social conditions, was made last winter and spring by Dr. E. Oliver Belt, ophthalmologist, and Dr. Johnson Eliot, otologist, both well known and accomplished specialists, the memory tests being made of the same number by the writer of this paper and published elsewhere.

The observations were made in the fourth and fifth grades, the average of the whites in these grades being in the fourth, 10.63 years, and 11.40 years in the fifth, with extremes of 8 and 14 years, and of the blacks, 12 years in the fourth and 13.14 years in the fifth, with extremes of 8 and 18 years, an average difference in both grades together of 1.56 years in the two races.

The tests of vision were made with Snellen's charts or typographic scales, and of hearing with the watch and tuning-fork.

Of the 1,000 eyes of the whites, 16.60 per cent. had subnormal vision, including 7.2 per cent. with "defective" and "very defective" vision. (Those having $\frac{20}{40}$ to $\frac{20}{70}$ by Snellen's charts were classed as "defective," and those above $\frac{20}{70}$ as "very defective.")

Of the 1,000 ears, 19.50 per cent. had subnormal hearing, 4.9 per cent. being classed as "defective" and "very defective." ("Defective," $\frac{15}{50}$ to $\frac{35}{50}$; "very defective," below $\frac{15}{50}$.)

Of the 1,000 eyes of the "blacks," 20.6 per cent. had subnormal vision, including 7.3 per cent. with "defective" and "very defective" vision.

Of the 1,000 ears, 19.3 per cent. had subnormal hearing, 6.2

per cent. being "defective" and "very defective." Taken together, the visual defects were 3.46 per cent. greater in the blacks, the aural defects being nearly equal in both races (19.50 white, 19.03 black). The difference in the visual acuity and hearing of the right and left eye and ear was found to be very slight in either race.

	Subnormal.	
Whites, 1,000 eyes	83 right,	83 left.
Blacks, 1,000 "	108 "	92 "
Whites, 1,000 ears	98 "	96 "
Blacks, 1,000 "	95 "	100 "

The sexual division of these subnormals was as follows:

Whites, eyes	60.85	per cent.,	female.
Blacks, "	57.70	"	"
Whites, ears	56.70	"	"
Blacks, "	43.30	"	"
Whites, eyes	39.15	"	male.
Blacks, "	42.30	"	"
Whites, ears	43.30	"	"
Blacks, "	56.70	"	"

While, as a whole, the racial difference in the distribution is slight, the maximum percentage of subnormal eyes in both races is found in the white female.

In the whites the female eye and ear are both the most defective, while in the blacks the female has the most defective eye and the male the most defective ear.

The males of the two races combined gave 40.72 per cent. in the eyes and 50 per cent. in the ears, the females 59.27 per cent. in the eyes and 50 per cent. in the ears.

Of the black subnormals but 66 per cent. could be classed as "dark," 28.11 per cent. as "medium," and 5.89 per cent. as "light" in color, while of the whole number of blacks 72 per cent. were "dark," 22.80 per cent. "medium," and 5.20 per cent. "light." Negroes of absolutely pure blood are, however, rarely found in the large centers of population.

The Washington school-rooms are well lighted and well ventilated, and the hygienic condition of the homes of the poorer classes is superior to that found in most cities of a like population, while the number of study hours is less and the number of exercise hours greater than in England, France, or Germany.

In the latter country especially the study hours of the *Volkschulen* are much longer than those in the United States, as a whole. The difference in the hours of Berlin and Washington is remarkable. The actual length of the school year in Berlin is 46 weeks; in Washington, 36 weeks. In Berlin the study hours are 32 per week; in Washington, 25 per week. In Berlin, 46 weeks of 32 hours equal 1,472 hours annually; in Washington, 36 weeks of 25 hours equal 900 hours annually—a difference of 572 hours annually, the Washington hours being but 61.14 per cent. of those of the Berlin schools. (For this comparison I am indebted to Dr. Addis, of the U. S. Bureau of Education.) "This difference is enormous, even when it is considered that the afternoon in Berlin is devoted to drawing and other accomplishment studies, which, however, are trying to the eyes and are no relief to the strain of the morning."

These facts will perhaps account for the comparatively low-rate percentage of subnormal aural and visual acuity found here.

In the rules of the public schools of the District of Columbia, under the heading, "Duties of Teachers," it is directed in assigning lessons for study at home that "no such lessons shall be assigned to pupils in the first, second, third, fourth, or fifth grades."

The lessons for the sixth or seventh grades shall not require more than one and a half hours, and for the eighth grade not more than two hours. Neither arithmetic, penmanship, or map drawing shall be assigned out of school hours. Where such study is required the work to be done shall be so definitely stated and so thoroughly explained by the teacher that intelligent pupils can master it without assistance."

While these rules may not be as precisely and rigorously enforced as they should be, they exert an influence in keeping the home work required within hygienic limits, judging from the results obtained.

It is highly probable also that the comparative noiselessness of the Washington streets and the quiet surroundings of the dwellings and school-houses (I remember but one flagrant exception), when compared with those of Berlin, London, New York, Boston, or Baltimore, will, in a measure, account for the small number of aural defects.

As to the visual defectives found elsewhere, Dr. A. St. Clair

Buxton reports an examination of 2,500 boys from the upper and middle classes in English grammar and other schools and in private practice, which resulted in finding 36.46 per cent. with defective vision (London *Lancet*, April 27, 1895).

Mr. Holmes Spicer in an East London school found 40 per cent. (Report Opth. Soc., London *Lancet*, May, 1894).

Dr. Dennett, at Hyde Park, Massachusetts, in 1,133 children, found 24 per cent. with defective vision; Dr. Pischl, of San Francisco, in 1,900 children, 30.48 per cent. defective; Dr. Minor, at Memphis, in 682 children, 25 per cent. defective; Dr. Ledbetter, in Birmingham, Alabama, in 512 scholars in grammar and high grades, 20.50 per cent. subnormal; Drs. Loring and Derby, of New York, in 2,265 eyes of children found 14 per cent. subnormal at the beginning and 39 per cent. at the close of their school years; Drs. Prout and Mathiewson, in 600 eyes in Brooklyn, New York, 37 per cent. at beginning and 40 per cent at close of school years.

"In Baltimore, where the vision of 53,000 children has been recently tested in the fourth and fifth grades, 51.50 per cent. were found to have subnormal or defective vision, and in all the grades examined the vision of 17.05 per cent. "was so poor as to demand investigation." (Official report.)

Messrs. Roosa and Emerson have shown to their satisfaction that but one in ten persons have absolutely normal vision. Obviously, however, no such general statement can be authoritatively made, as beside the insufficient data upon which to found such a statement, we have the common difficulties to contend with, the differing conditions of vision, the absence of uniformity in testing methods and of periodical examinations, the difference in the ages of those examined, their limited numbers, etc. While these data serve the admirable purpose of pointing out the general neglect of these organs, and of emphasizing the importance and necessity of greater attention to their defects, they fail to be of any great value as the foundation of general statements or for comparative purposes.

In the primitive races, especially in temperate regions, the sight and hearing are normal. In an examination of 161 male and 89 female Indians, from 8 to 22 years of age, of 27 different tribes, made at Carlisle, Pennsylvania, 237 of the 250 had normal vision, the few defectives found being among the semi-civilized *Creeks*. The Sioux, Kiowas, and Modocs have thus far escaped any taint of myopia. (Dr. Fox, *Phila. Med. Times*, vol. 12, p. 346.)

Alex. von Humboldt estimated the visual acuity of the South American Indians to be five times greater than ours. Dr. Büttikofer, the distinguished zoölogist of the Reichs Museum, Leyden, when in Africa a few years since, employed, in hunting, boys in preference to dogs, because of their keener vision and sense of smell. He says: "The young Negroes, or hunting boys, could, like scenting dogs, discover game in the dark, and their sharp eyesight and hearing enabled them to discover or hear the least movement.'' ("Reisebilder aus Liberia," J. Büttikofer, Leyden, 1890.)

Chatelain, in speaking of the high development of these faculties in the natives of Portuguese Angola, remarks: "The scenting of a stranger is not uncommon in a Negro entering a house." ("Folk Tales of Angola.")

The aborigines of Formosa distinguish fruits hidden in the thick foliage of the jungle by their odors, and detect by the smell those from which the bees have extracted the honey.

"The power of sight of the Waganda is extraordinary. It frequently excelled that of a 6-guinea field-glass. Their sense of hearing is also very acute." (Stanley, "Through the Dark Continent.")

These statements of the power of natural faculties in primitive conditions seem abundantly to sustain the contention of M. Hippel in his "Discours Académique," that intellectual culture and social progress are incompatible with sound bodily health and the perfection of natural faculties.

Félix Gras, the Provençal poet, voices this unpleasant truth in the words of the peasant Pascalet, who had never opened a book: "We, the poor—the very poor—can see in the dark."

The first examination of the ears of public-school children is said to have been made by W. Von Reichard, at Riga, in 1878, who found by the watch 22.03 per cent. defective.

Dr. Weil, of Stuttgart, tested 5,900 children by whispered speech (the hearing distance of the normal ear being from 65 to 80 feet) and found 30+ per cent. defective. Dr. Samuel Sexton, of New York, of 570 children (one-half black), found 13 per cent. defective. Mr. Morrell, of 491, found 25 per cent. defective; Dr. Bezold, of 1,200 children, ages 7 to 12, 26.5 per cent defective.

Dr. Gelle, of the children examined by him, found 22 per cent. with less than normal acuity of hearing. (Dr. Gelle, "*De L'Audition dans L'école.*")

Perhaps the most important and convincing evidence of the humanitarian and economic value of these examinations will be found in the ignorance and indifference developed by this Washington inquiry in all, but especially in the lower classes of society, as shown by the accompanying tables.

In the blacks it will be found that of all the eyes classed as "extremely defective," "very defective," and "defective," 43+ per cent. were "unknown to parent, teacher, and scholar," and of those classed as "extremely defective," or less than one-tenth normal vision, 22.50 per cent. were likewise unknown. In the ears of the blacks, 57 per cent. of all the defectives were "unknown" and 55 per cent. of the "very defectives," or those having less than one-third normal hearing.

In the whites the record is better. Of all the "defective" eyes, 34.28+ per cent. were "unknown" to all, and of the "very defectives," but 1 per cent. were in like manner unknown. In the ears of the whites less than 2 per cent. of all the "defectives" were "unknown," and of the "very defectives" none were "unknown." But with the knowledge of these existing defects the instances were very rare in either race in which the defectives were under treatment, a condition resulting, as above remarked, from ignorance and indifference and from poverty.

It has been generally observed that of the beginning of its defective hearing or eyesight the child is ignorant, and that a person may be deaf with one ear or have defective vision in one eye and yet hear and see so perfectly with the other as not to observe the defect. As the defects increase, faulty vision or hearing is mistaken for dullness or stupidity.

As Dr. Samuel Sexton has remarked regarding deafness, all degrees of deficiency impair the learning capacity of the pupil. "We are *a priori* justified," asserts Dr. Bezold, "in assuming that even a partial defect in hearing will find expression somehow in the mental development of the affected children," or, put in a different way, that the diminution in mental development will correspond closely to the degree of diminished hearing. "I have often," says Dr. Gelle, "had occasion to mention the frequency of the cases in which the pupil suffers from defective hear-

One thousand ears—white.	Number of cases.	Number of ears.	Right.	Left.	Unknown to parent, teacher, and scholar.	Known to parent, teacher, and scholar.	Unknown to teacher; known to parent and scholar.	Known to teacher and scholar; unknown to parent.	Unknown to parent and teacher; known to scholar.	Known to teacher; unknown to parent and scholar.
Very defective (—$\frac{15}{50}$)	3	4	2	2	......	3	....	1	....	....
Defective ($\frac{15}{50}$ to $\frac{35}{50}$)	32	46	26	20	9	27	4	....	2	4

One thousand eyes—white.	Number of cases.	Number of eyes.	Right.	Left.	Unknown to parent, teacher, and scholar.	Known to parent, teacher, and scholar.	Unknown to teacher; known to parent and scholar.	Known to teacher and scholar; unknown to parent.	Unknown to parent and teacher; known to scholar.	Known to teacher; unknown to parent and scholar.
Extremely defective ($\frac{20}{200}$), $\frac{1}{10}$ normal vision	9	10	4	6	1	8	1	....	....	....
Very defective ($\frac{20}{100}$), $\frac{1}{5}$ normal vision	10	11	6	5	10	......	....	....	....	....
Defective ($\frac{20}{40}$ to $\frac{20}{70}$)	37	49	23	26	13	32	....	....	2	2

One thousand ears—black.	Number of cases.	Number of ears.	Right.	Left.	Unknown to parent, teacher, and scholar.	Known to parent, teacher, and scholar.	Unknown to teacher; known to parent and scholar.	Known to teacher and scholar; unknown to parent.	Unknown to parent and teacher; known to scholar.	Known to teacher; unknown to parent and scholar.	Known to parent; unknown to teacher and scholar.
Very defective ($-\frac{15}{50}$)	13	20	11	9	11	2	6	.....	.....	.....	1
Defective ($\frac{15}{50}$ to $\frac{35}{50}$)	26	38	21	17	22	8	6	.....	2	.....	.....

One thousand eyes—black.	Number of cases.	Number of eyes.	Right.	Left.	Unknown to parent, teacher, and scholar.	Known to parent, teacher, and scholar.	Unknown to teacher; known to parent and scholar.	Known to teacher and scholar; unknown to parent.	Unknown to parent and teacher; known to scholar.	Known to teacher; unknown to parent and scholar.	Known to parent and teacher; unknown to scholar.
Extremely defective ($\frac{20}{200}$)	16	22	12	10	5	12	5	.....	.....	.....	.....
Very defective ($\frac{20}{100}$)	8	11	4	7	4	1	3	.....	1	.....	2
Defective ($\frac{20}{40}$ to $\frac{20}{70}$)	28	40	24	16	23	9	4	.....	1	3	.....

ing, and how his education, his advancement, his progress, and his success are hindered, limited, and arrested by defective ears." Superintendent Whitney, before quoted, established an "unclassified" department in the grammar grades for unadaptable or dull pupils, "hoping thus to more perfectly adjust matter and method to individual needs and capacities." He was astonished to find upon examination that every scholar enrolled in that department was a sufferer from defective vision, defective hearing, or from both together. Of 50,000 children examined by Dr. Francis Warner, London F. R. C. P., 1892–'94, the percentage of those having developmental defects in the cranium, eye, ear, and physique, who were mentally "dull," was 38.4 of the boys and 44.9 of the girls.

The eyes and ears of Negroes have been observed in such limited numbers that few positive conclusions of value can be arrived at. As before suggested, the differences in the age, in the admixture of blood, the physical conditions, and the personal environment of that race render a comparison of the few statistics obtained extremely liable to error.

As a race much nearer the primitive condition than our own, it would, like the Indian, have retained its powers of eyesight and hearing in a much higher degree if it could have maintained its purity. Unquestionably these faculties in the slave were superior to those in his descendants; but even now, in remote sections of the South, small communities can probably be found in which the powers of the eye and ear would closely approach those attained in primitive conditions. It is, however, generally conceded by all observers that these powers have in the race as a whole not only deteriorated but are still rapidly declining. It is thus far comparatively free from myopia, but the records of "The Medical Department of the Bureau of Refugees, Freedmen, and Abandoned Lands," from 1865 to 1872, show in that early period of the Negroes' independent life that among them, as compared with the whites, there was a much larger number of cases of inflammation of the eye of all kinds, a condition which is confirmed by very recent observers. Some of these affections are of such a positively infectious, dangerous, and contagious character that the school and the community at large should be protected from them by adequate supervision under the law—a requisition, however, which, as we have shown, should not be limited by race or condition.

The observations made in all countries have been particularly directed to the discovery of myopia, the most generally prevalent and persistent of all eye affections among Europeans, with the purpose of finding methods of prevention and relief. Sight is *par excellence* the intellectual sense, and a disease which so seriously threatens its existence has naturally excited among thinking men, and especially in the ranks of European educators, great interest and alarm.

It has been conclusively shown that myopia is a progressive disease, and that, in the language of Donders, "a myopic eye is absolutely a diseased eye;" that the period of its beginning is in the early years of the school life; that in the school-room it is possible to direct and control the conditions in which myopic pupils shall work, and to minister to their comfort and general welfare in a greater degree than in the average household. In the opinion of Dr. Cohn and others, the prevalence of myopia in the schools is due to heredity, defective hygiene, bad light, the protracted use of the eyes at too short distances, bad air, badly printed books, the use of the black slate in preference to paper, the method of writing, long hours, bad desks, necessitating vicious positions; bad health, too early and too persistent use of the eyes, and injudicious exercises in the kindergarten, etc.

A report made to the last National Council of Education, held at Buffalo, New York, informs us that "the deplorable hygienic state of the school-houses throughout the whole country is such as to demand serious attention and prompt relief. In one large Eastern city, a few years since, it was found that the average of the 1,200 school-rooms gave but about *one-fourth of the floor space* and *less than one-third of the air space* now considered necessary for each pupil in a school-room.

Sweden has found by thorough examination a very positive relation between long study hours and the ill health of its public-school children. Its commissioners found in the lower classes a requirement of seven hours daily work, and in the higher, eleven or twelve hours, not including the time occupied in private instruction or optional studies. Of the boys who worked the shorter time 50.8 per cent. had bad health, and of those who worked the greater number of hours 56.1 per cent. (Report of Commissioners of Education, 1888–'89, p. 220.)

The distribution of myopia is very general.

Dr. Cohn, of Breslau, found in the country schools of Germany a percentage of myopes of but	1.4	per cent.
In primary grades of cities	6.7	"
In intermediate grades of cities	10.3	"
In polytechnic schools	19.7	"
In Latin schools	26.2	"
In universities	59.0	"

Dr. Seggel, at Munich, found among professional men 57.5 per cent.; artisans, 8.5 per cent.; divers occupations, 3 per cent., and among peasants. 2 per cent. myopic.

Dr. Ayres found in the district schools of Cincinnati, Ohio, 10 per cent.; in the intermediate schools, 14 per cent., and in the high schools, 16 per cent. myopic.

In the Brooklyn Polytechnic there was found in the academic department a percentage of 10 per cent., and in the collegiate department 28 per cent.

Of 8,631 soldiers in the French army examined by Dr. J. Chauvel, 54.80 per cent. were found to have slightly myopic vision, and of 3,133 subjects, myopia was said to be hereditary in 33.7 per cent., and acquired in the remainder. ("Remarques statistiques et cliniques sur les examens des yeux par J. Chauvel, med. Prin. de 1're classe, Fr. army.")

Our own statistics are not exact enough to be of any comparative value; the indications are, however, in favor of a lower average percentage of myopes than is obtained in European countries, where Germany appears to lead all the others, closely followed by Italy, Sweden, France, and Hungary.

As already remarked, myopia has not yet acquired a strong hold among the blacks. Dr. Peter A. Callan, of New York, in 1,000 eyes of negro school children found in the lower grades but 1 per cent., and in the higher grades but 3 per cent. of myopes, and Dr. Belt, of Washington, in 1893, 1 per cent. in the lowest and 12 per cent. in the highest grades.

Dr. Kollock, of Charleston, South Carolina, who seems to have had exceptional opportunities and experience in studying the Sea Island Negro, the purest type of the African Negro now existing in the United States, says: "The writer has never seen but three cases of myopia in the black Negro, and though they were black in color, still other features indicated a mixed blood. In the pure-blooded Negro I have never seen a case of true myopia." ("The Eye of the Negro," C. W. Kollock, M. D., Annals of Oph. and Otol., 1893, vol. 2, No. 2.)

The entire neglect on the part of State officers, to whom are entrusted the supervision of our educational matters, to make any effort to conserve, cultivate, or to improve in the masses the faculties of sight and hearing is a national misfortune, the obvious and natural result of the individual ignorance and indifference now prevailing. Sufficient attention has not been given to the fact that the eye and the ear can be trained and educated with the other faculties. "All normal eyes," asserts Dr. Trifaud, of the French army, "are capable of acquiring greater delicacy of perception by exercise." Brundell Carter, in his recent report to the British Education Department, holds that the prevalence of subnormal vision is due to the fact that children so rarely are required to look at distant objects.

"The military service, because of the numerous exercises in the open air in which the vision is practiced at great distances, seems to develop the eye of the soldier to the keenness of that of the savage, the sailor, and the hunter." ("L. Education du sens de la vue chez de soldat," E. Trifaud, medicin major de 2d classe.)

It is a truism that the ideas of space, perspective, etc., are not natural, not inborn, but the result of education.

We may not expect to reach the primitive efficiency of our sight and hearing, but, like all the other organs of the body, the eye and the ear can acquire greater perfection by the judicious exercise of their functions, or become atrophied from neglect or lost by abuse. As to the means to be employed in correcting these evils, no expensive appliances, no large corps of highly paid medical officers are necessary.

In a very few lessons the teachers can be taught to make the eye and ear tests—of the eye by typographic scales, of the ear by the watch or voice. When defects are discovered one expert medical officer can attend to a large number of cases.

Without this examination no child of any class or condition should be permitted to enter upon or continue the school life, and then a few generations hence we shall approach more nearly to that acuity of hearing and of sight possessed by Barty Josselin, the hero of Du Maurier's last story, who "could hear a watch tick in the next room, distinguish sounds to which ordinary human ears are deaf, and see the satellites of Jupiter with the naked eye."

GEORGE R. STETSON.

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